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09/415,018	10/07/1999	ARNAUD PEDENON	21891.02300	4199

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ADAM H. TACHNER  
TWO EMBARCADERO CENTER  
P.O. BOX 7936  
SUITE 2000  
SAN FRANCISCO, CA 94120-7936

EXAMINER

FERRIS III, FRED O

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/415,018

Applicant(s)

PEDENON, ARNAUD

Examiner

Fred Ferris

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-14 and 22-28 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7,15,16,18,21,29 and 30 is/are rejected.
- 7) ☒ Claim(s) 3,5,6,17,19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s) 1/9/03
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) g 6) ☐ Other:

### DETAILED ACTION

1. *Claims 1-30 have been presented for examination based on applicants' amendment dated 15 October 2002. Claims 1, 2, 4, 7, and 15, 16, 18, 21, 29, 30 have been rejected by the examiner. Claims 3, 5, 6, 17, 19, 20 are objected to. Claims 8-14 and 22-28 have been allowed.*

### **Response to Arguments**

2. *Applicant's arguments filed 15 October regarding independent claims 1 and 15 have been fully considered but they are not persuasive.*

*Regarding claims 1 and 15: Applicants' have argued that the claimed invention makes use of a "mathematical expression" to describe cells which is somehow different from Chang which uses a "polynomial". Examiner asserts that a "polynomial" is in fact also a "mathematical expression" and therefore not clearly distinguishable from Chang. Applicants' have further argued that Chang does not transform a candidate cell into a requested cell or use rules. Examiner asserts that the look up tables of Chang are in effect a "rule" since they ultimately determine the polynomial forms and do in fact "transform" look-up table data structures. (see CL7-L27, 53, 62) Accordingly, examiner upholds the 102(e) rejection.*

**Examiner encourages applicants' to amend independent claim 1 to include the limitations of dependent claims 3, 5, and 6, and to further amend independent claim 15 to include the limitations of dependent claims 17, 19, and 20 in order to clearly distinguish the claimed invention from prior art of record.** Please see

*attached Interview Summary Form. (PTO-413) At such a time examiner will consider entry of any amendment and allowance of remaining claims.*

### ***Drawings***

3. *This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.*

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. **Claims 1, 2, 4, 7, and 15, 16, 18, 21, 29, 30 are rejected under 35**

**U.S.C. 102(e) as being unpatentable over U.S. Patent 6,272,664 issued to Chang et al.**

Independent claim 1 is drawn to:

A method for **inferring sequential cell** from **candidate cell** in **netlist** comprising steps of:

representing **requested cell** as **mathematical expression**

representing **candidate cell** as **mathematical expression**

performing **operation on requested cell** representation **with candidate cell** to return **value**

**providing rule** for **returned value**

**transforming** candidate cell into **requested cell** by performing **rule**

*Regarding independent claim 1: Chang teaches a system and method for representing an **input (requested) cell** from a **netlist** as a **mathematical expression** and further providing an **output (candidate) representation**. Chang also teaches performing an **operation on the input cell** to return a new value by **providing a rule** (based on look-up tables) and further **transforming the cell** by performing the **rule**. (Abstract, Summary of Invention, Figs. 9-11, 13-15, 18, CL7-L7-45, CL7-L53-CL8-L56, CL9-L5-CL8-L50, Table 1-5, CL19-L1-CL23-L54)*

Dependent claims 2, 4, 7 are drawn to the features of claim 1 and:

mathematical representations of **candidate/requested cell** are **polynoms**  
**polynoms comprise multinoms** corresponding to **logical elements**  
steps **implemented by computer**

*Regarding dependent claims 2, 4, 7: Chang teaches mathematical representations where **candidate/requested (input/output) cells** are represented as **polynomials** which are comprised of **multinomial** parts corresponding to **logical***

**elements that is implemented by computer.** (Abstract, Summary of Invention, Figs. 9-11, 13-15, 18, CL7-L7-45, CL7-L53-CL8-L56, CL9-L5-CL8-L50, Table 1-5, CL19-L1-CL23-L54)

Independent claim 15 is drawn to:

A system for **inferring sequential cell** from **candidate cell** in netlist comprising steps of:

means for representing **requested cell** as **mathematical expression**

means for representing **candidate cell** as **mathematical expression**

means for performing **operation on requested cell** representation **with candidate cell** to return **value**

means for providing rule for **returned value**

means for **transforming** candidate cell into **requested cell** by performing **rule**

*Regarding independent claim 15: Chang teaches a system, method and **means** for representing an **input (requested) cell** from a **netlist** as a **mathematical expression** and further providing an **output (candidate) representation**. Chang also teaches performing an **operation on the input cell** to return a new value by **providing a rule** (based on look-up tables) and further **transforming** the cell by performing the **rule**. (Abstract, Summary of Invention, Figs. 9-11, 13-15, 18, CL7-L7-45, CL7-L53-CL8-L56, CL9-L5-CL8-L50, Table 1-5, CL19-L1-CL23-L54)*

Dependent claims 16, 18, 21 are drawn to the system features of claim 15 and:

mathematical representations of **candidate/requested cell** are **polynoms**  
**polynoms comprise multinoms** corresponding to **logical elements**  
steps **implemented by computer**

*Regarding dependent claims 16, 18, 21: Chang teaches mathematical representations where **candidate/requested (input/output) cells** are represented as*

***polynomials*** which are comprised of ***multinomial*** parts corresponding to ***logical elements*** that is ***implemented by computer***. (Abstract, Summary of Invention, Figs. 9-11, 13-15, 18, CL7-L7-45, CL7-L53-CL8-L56, CL9-L5-CL8-L50, Table 1-5, CL19-L1-CL23-L54)

### ***Allowable Subject Matter***

5. *Claims 8-14 and 22-28 are allowed.*

The following is a statement of reasons for the indication of allowable subject matter: *Claims 8-14 and 22-28 are deemed novel and non-obvious over prior art of record.*

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office Action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

*Claims 3, 5, 6, 17, 19, 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.*

**Conclusion**

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

*The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, careful consideration should be given prior to applicant's response to this Office Action.*

*U.S. Patent 6,415,425 issued to Chaudhary et al teaches mathematical cell representation in netlists.*

*U.S. Patent 6,088,519 issued to Koford teaches mathematical cell representation.*

*"Formal Verification In hardware Design" C. Kern, ACM 1084-4309/99/0400, 1999, teaches mathematical cell representation in netlists.*



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 703-305-9670 and whose normal working hours are 8:30am to 5:00pm Monday to Friday.

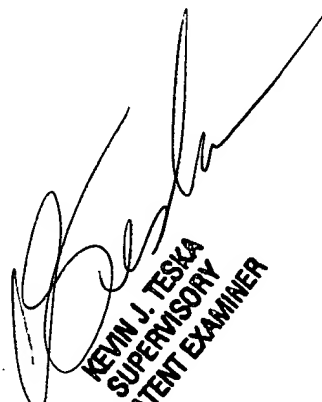
Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 703-305-3900.

The Official Fax Numbers are:

After-final	(703) 746-7238
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*Fred Ferris*, Patent Examiner  
Simulation and Emulation, Art Unit 2123  
U.S. Patent and Trademark Office  
Crystal Park 2, Room 5D53  
Crystal City, Virginia 22202  
Phone: (703) 305 - 9670  
FAX: (703) 305 - 7240  
Fred.Ferris@uspto.gov

**January 12, 2003**



KEVIN J. TESKA  
SUPERVISORY  
PATENT EXAMINER